

Flapjack is a visualization and analysis program for genotype data. The software is provided by The James Hutton Institute (JHI) and runs on Windows, Linux and MacOS. The program is available from [Flapjack Download](#). Data from T3 website can be accessed by

1. Saving from T3 then importing into Flapjack or
2. Using BrAPI to import directly into Flapjack

## Download data from T3 website then import the data into Flapjack

1. The data can be selected by Select => Wizard or Select => Lines by Genotype Experiment

The screenshot shows the Flapjack web interface. The top navigation bar includes 'Select', 'Analyze', 'Download', 'Browse', 'Reports', 'Manage', and 'Resources'. The 'Select' menu is open, showing options like 'Wizard (Lines, Traits, Trials)', 'Lines by Properties', 'Lines by Phenotype', 'Lines by Haplotype', 'Lines by Genotype Experiment', 'Traits and Trials', 'Markers', 'Subset by Marker Polymorphisms', 'Genetic Map', and 'Clear selection'. The 'Lines by Genotype Experiment' option is selected. The main content area is titled 'Select Lines by Genotype Experiment' and shows a list of experiments and lines. The 'Experiments' dropdown is set to 'UC Davis', and the 'Lines' dropdown is set to 'WorldwideDiversityPanel\_9K'. The list of lines includes 'ATLAS66', 'NW03666', 'SD07220', 'LOUISE', 'CITR14695', 'PI94530', 'PI173442', 'PI119350', and 'PI48147'. A 'Save selection' button is visible at the bottom.

2. Go to Select => Genetic Map

**Map Sets**

This table lists the total markers in each map. If a marker is not in the the selected map set then it will be assigned to ch

select	markers (total)	markers (in selected lines)	map set name	comment (select item for complete te
<input type="radio"/>	877		Aegilops tauschii, 2009	From Luo et al, (2009) PNAS 106(37
<input type="radio"/>	19720		SynOp GBS BinMap, 2012	Bin map of Synthetic W9784 x Opata bet
<input type="radio"/>	1485		SynOp GBS AntMap, 2012	Genetic linkage map of Synthetic W9
<input type="radio"/>	1625		KleinProteo x KleinChaja, 2012	Contacts: Jorge Dubcovsky, Luxmi Tr
<input type="radio"/>	3503		wsnp 2013 Consensus	Consensus wsnp map from C.R. Cav
<input type="radio"/>	38832		90K Array Consensus	From: Wang et. al. (2014) Characteri
<input type="radio"/>	125340		CSS POPSEQ 2014	A genetic map created by locating th
<input type="radio"/>	3393777		CSS GBS 2014	A physical map of GBS markers start a
<input checked="" type="radio"/>	168455		RefSeq v1.0	A physical map from IWGSC RefSeq
<input type="radio"/>	145004		Chromosome Survey Sequence, 2014	A physical map from the Chromosom Genome

3. Go to Download => Genotype and Phenotype Data - Select Flapjack format
4. Select "Create File"

Download ▾
Browse ▾
Reports ▾
Manage ▾
Resources ▾

Genotype and Phenotype Data
SNP Alleles and Sequences
Marker Annotation
Bulk Download
Android Field Book
Weather Data
Genetic Maps

## Genotype and Phenotype Data

to retrieve the results.

consus ☒ Genotype single experiment

Lines	Markers	Traits	Trials
ATLAS66 NW03666 SD07220 LOUISE CITR14695 PI94530 PI173442 PI119350 PI48147	All	none selected	none selected

Minimum MAF ≥ 5 % Remove markers missing > 50 % of data

Removed by filtering	Remaining
73 markers have a minor allele frequency (MAF) less than 5% 0 markers are missing more than 50% of data 73 markers removed	6232 markers

Create file

SNP data coded as {A,C,T,G,N,+,-}  
tab delimited  
used by **TASSEL**

file type "Hapmap"  
for genetic maps the value in pos column is multiplied by 1000 and cor

Create file

genotype coded as {AA=1, BB=-1, AB=0, missing=NA}  
comma delimited  
used by **rrBLUP**

read.table("snppfile.txt", header=TRUE, check.names=FALSE)  
read.table("genotyp.hmp.txt", header=TRUE, check.names=FALSE)

Create file

genotype coded as {AA, AB, BB}  
used by **Flapjack**

Create file

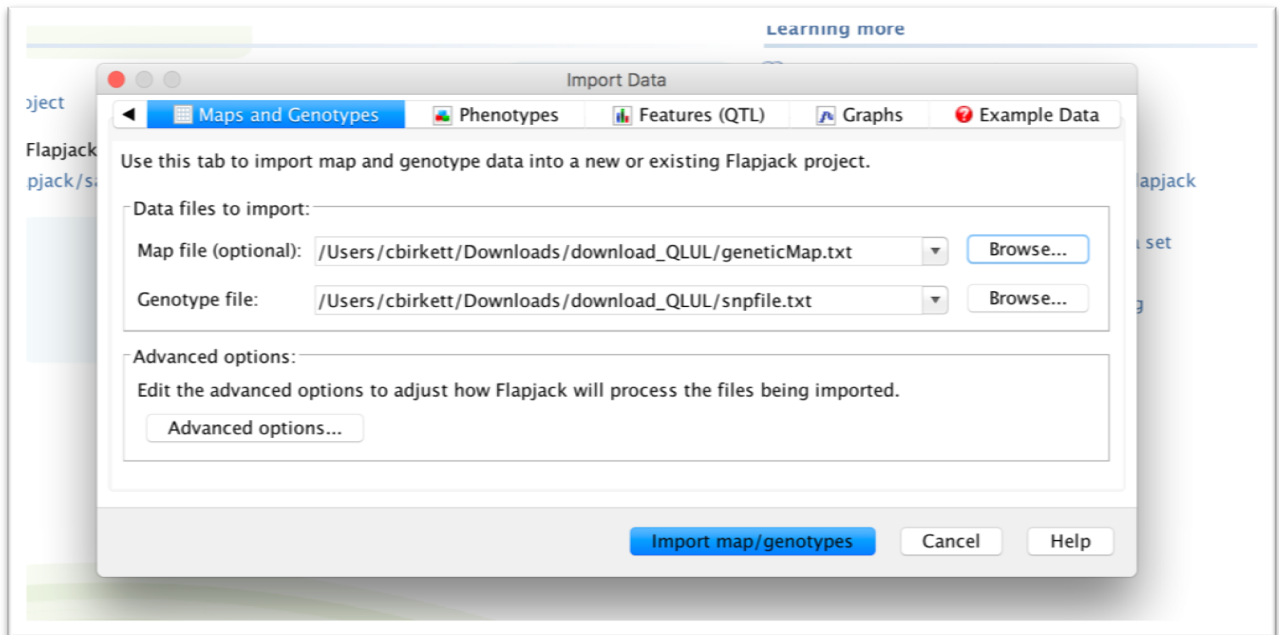
**VCF** format  
used by **TASSEL**

Create file

**VCF** format  
Impute missing genotypes using Beagle

using beagle.10Jun18.811.jar (version 5.0)

5. In Flapjack Program select “Import Data”



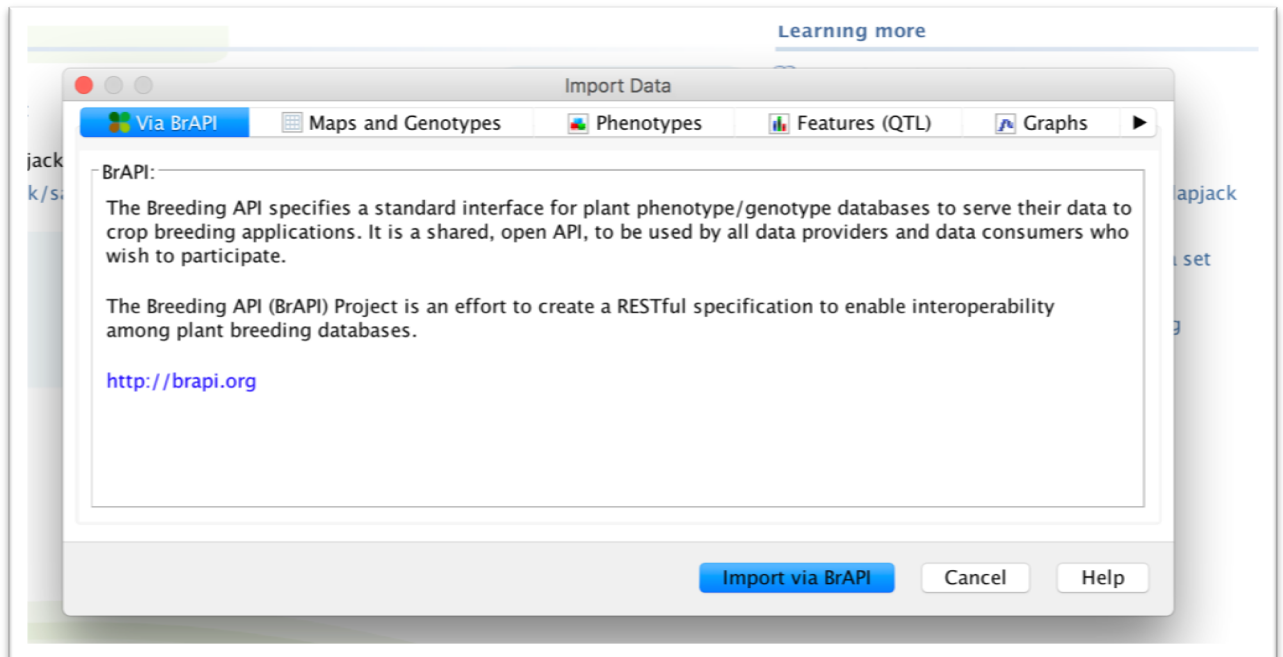
6. On the “Map file” line select “GeneticMap.txt” file.

7. On the “Genotype file” line select “Browse” then select the “snpfile.txt” file.

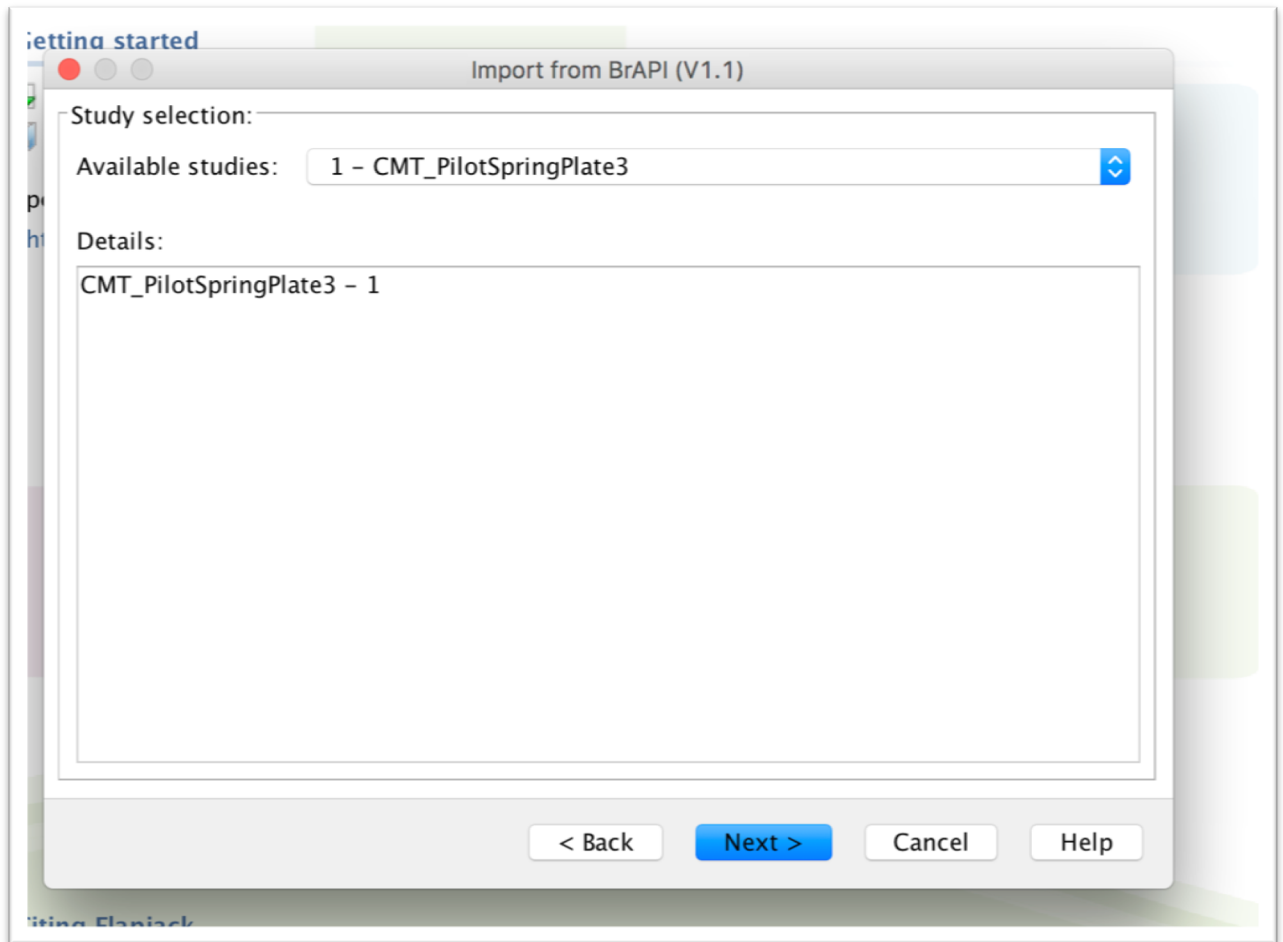


## Use BrAPI to directly import data from T3 into Flapjack

1. In Flapjack Program select “Import Data” then select left arrow so Via BrAPI is visible.
2. Select “Import via BrAPI”



3. In the Category select “Triticeae Toolbox, The” then “Next” then “Next” again.
4. Select from the list of studies then “Next”



5. Select from the list of Maps then "Next"
6. The Importing data step may take several minutes for large studies or maps.